Master of Science Programme in Computer Science (International Programme)

หลักสูตร   วิทยาศาสตรมหาบัณฑิต   สาขาวิชาวิทยาการคอมพิวเตอร์ (หลักสูตรนานาชาติ) (ภาคพิเศษ)

Faculty of Information and Communication Technology

คณะเทคโนโลยีสารสนเทศและการสื่อสาร

Expected number of students to be accepted all year round: 30 Students

(Plan A (2) = 20 Students , Plan B = 10 Students)

Admission Requirements:

1. Hold a Bachelor's degree in computer science, information and communication technology, computer engineering, or other related areas that have taken at least 12 credits of computer courses.
   สำเร็จการศึกษาระดับปริญญาตรี สาขาวิทยาการคอมพิวเตอร์ สาขาเทคโนโลยีสารสนเทศและการสื่อสาร วิศวกรรม
   คอมพิวเตอร์ หรือสาขาอื่นที่เรียนวิชาทางคอมพิวเตอร์มาไม่น้อยกว่า 12 หน่วยกิต

2. Obtain the cumulative GPA of at least 2.5.
   ได้เกรดเฉลี่ยสะสมไม่น้อยกว่า 2.5

3. Submit a certificate of English proficiency with minimum admission score:
   - IELTS   - at least 3   or
   - TOEFL INTERNET BASED - at least 32   or
   - TOEFL ITP (test arranged by Faculty of Graduate Study, Mahidol University) - at least 400 or
   - MU GRAD TEST(Computer based) - at least 36

   Important Notes:
   - English proficiency score must be taken within 2 years up to the admission date.
   - Application without submitting a valid English certificate will NOT be considered.
   - MU English Competence Standards: www.grad.mahidol.ac.th
   - MU English proficiency tests, please contact the Language Center, Faculty of Graduate Studies.
     Tel. 0-2441-4125 ext. 221-222

4. Any applicants, who do not have qualifications according to 1 and 2, may be considered for admission by the Administrative Program Committee and the Dean of Faculty of Graduate Studies.
   ผู้สมัครที่มีคุณสมบัติไม่ครบตามที่กำหนด อาจได้รับการพิจารณาให้สมัครเข้ารับการคัดเลือกได้ตามดุลยพินิจของ
   คณะกรรมการบริหารหลักสูตรและคณบดีบัณฑิตวิทยาลัย

Written Examination (Applicants must attend the examination date accurately to your admission round)

Subjects for examination	Time (Morning session)
1. Mathematics 2. Computer	8.00 - 12.00 a.m.
Examination Place Faculty of Information and Communication Technology, Mahidol University, Phayathai campus, Bangkok more details : http://www.grad.mahidol.ac.th or http://www.ict.mahidol.ac.th	

Note that the exam subject "Mathematics" covers the topics in Linear Algebra, Geometry, Discrete Mathematics, Calculus, Statistics, Probability and the exam subject "Computer" covers the topics in Databases (such as SQL, relational algebra, and Entity-Relationship diagram, etc.), Computer Networks (such as data communications, OSI model, TCP/IP protocol suite, routing algorithms, and application layer protocols, etc.), and Operating Systems (such as file systems, CPU scheduling, process programming, algorithmic programming, process synchronization and deadlock, memory management, UNIX commands, etc).

Curriculum Structure

Plan A (2)	Credit	Plan B	Credit
Prerequisite Courses	Non-credit	Prerequisite Courses	Non-credit
Required Courses	16	Required Courses	16
Elective Courses not less than	9	Elective Courses not less than	15
Thesis	12	Research Project	6
Total number of credits	37	Total number of credits	37

Credit

Prerequisite Courses (หมวดวิชาปรับพื้นฐาน ไม่นับหน่วยกิต)

ITCS	503	Design and Analysis of Algorithms	3(3-0-6)
ITCS	504	Computer Systems Organization and Architecture	3(3-0-6)
ITCS	507	Mathematical Foundations for Computer Science	3(3-0-6)

Required Courses (หมวดวิชาบังคับ)

ITCS	508	Research Methodology in Computer Science	1(1-0-2)
ITCS	589	Professional Practices in IT Project Management	1(0-2-1)
ITCS	601	Seminar in Computer Science I	1(1-0-2)
ITCS	602	Seminar in Computer Science II	1(1-0-2)
ITCS	621	Database Design and Administration	3(3-0-6)

ITCS	631	Computer Communications and Networks	3(3-0-6)
ITCS	643	Software Engineering	3(3-0-6)
ITCS	661	Advanced Artificial Intelligence	3(3-0-6)

Elective Courses (หมวดวิชาเลือก)

1. Software Engineering กลุ่มวิชาวิศวกรรมซอฟต์แวร์

ITCS	541	Software Requirement Analysis and Specification	3(3-0-6)
ITCS	542	Software Metrics	3(3-0-6)
ITCS	585	Professional Practices in Software Engineering	1(0-2-1)
ITCS	644	Software Quality Assurance	3(3-0-6)
ITCS	645	Object-Oriented Analysis and Design	3(3-0-6)
ITCS	651	Model-Driven Design and Development	3(3-0-6)

2. Database and Knowledge Management กลุ่มวิชาการจัดการฐานข้อมูลและความรู้

ITCS	513	Project Management	3(3-0-6)
ITCS	584	Professional Practices in Data Management	1(0-2-1)
ITCS	624	Advanced Information Storage and Retrieval	3(3-0-6)
ITCS	628	Data Mining and Knowledge Discovery	3(3-0-6)
ITCS	629	Knowledge Engineering	3(3-0-6)
ITCS	682	Advanced Database Systems	3(3-0-6)

3. Intelligent Systems กลุ่มวิชาระบบเชิงปัญญา

ITCS	514	Decision Support and Expert Systems	3(3-0-6)
ITCS	517	Machine Learning	3(3-0-6)
ITCS	518	Image Analysis and Understanding	3(3-0-6)
ITCS	611	Knowledge-based Systems	3(3-0-6)
ITCS	662	Advanced Pattern Recognition	3(3-0-6)
ITCS	663	Image and Signal Processing	3(3-0-6)
ITCS	665	Natural Language Processing	3(3-0-6)
ITCS	667	Advanced Computer Vision	3(3-0-6)

4. Multimedia Systems กลุ่มวิชาระบบสื่อผสม

ITCS	587	Professional Practices in Multimedia Systems	1(0-2-1)
ITCS	655	Computer Graphics	3(3-0-6)
ITCS	658	Human Computer Interaction	3(3-0-6)
ITCS	659	Multimedia Technologies and Applications	3(3-0-6)
ITCS	663	Image and Signal Processing	3(3-0-6)
ITCS	667	Advanced Computer Vision	3(3-0-6)

5.Network Systems and Security กลุ่มวิชาระบบเครือข่ายและความมั่นคง

ITCS	551	Service Oriented and Cloud Computing	3(3-0-6)
ITCS	552	Mobile and Pervasive Computing	3(3-0-6)
ITCS	554	Information Security Management	3(3-0-6)
ITCS	556	Computer and Network Forensics	3(3-0-6)
ITCS	583	Professional Practices in Networks and Security	1(0-2-1)
ITCS	633	Computer Network Design and Management	3(3-0-6)
ITCS	652	Computer System Performance Analysis and Evaluation	3(3-0-6)
ITCS	653	Advanced Computer Architecture	3(3-0-6)
ITCS	654	Parallel Computation	3(3-0-6)
ITCS	656	Computer and Communication Security	3(3-0-6)

6.Special Topics Courses กลุ่มวิชาหัวข้อพิเศษ

ITCS	571	Numerical Methods for Mathematical Optimization	3(3-0-6)
ITCS	681	Special Topics in Information Technology	3(3-0-6)
ITCS	695	Independent Study	3(0-6-3)

Thesis (Plan A (2))

ITCS	698	Thesis	12(0-36-0)

Thematic Paper (Plan B)

ITCS	697	Research Project in Computer Science	6(0-18-0)

* These may change in cases where there are suggestions for the improvement of the curriculum

Areas of research that a student can select for his/her research Thesis/Dissertation

1. Computer Networks ระบบเครือข่ายสื่อสาร

2. Security ระบบความมั่นคง

3. Intelligent Systems ระบบเชิงฉลาด

4. Database Systems ระบบฐานข้อมูล

5. Computer Architecture and Systems สถาปัตยกรรมและระบบคอมพิวเตอร์

6. Software Engineering วิศวกรรมซอฟต์แวร์

7. Information Retrieval ระบบการสืบค้นข้อมูล

8. Bioinformatics ชีวสารสนเทศ

9. Health Informatics สุขภาพสารสนเทศ

Addition advantages of the programme

The Master of Science in Computer Science program offers solid foundation computer science knowledge as well as specialized area of computer science to students who seek to become experts in computing with additional focus on software development and programming. The program is offered fully in English and consists of 5 specialized areas: software engineering, network systems and security, database and knowledge management, intelligent system, and multimedia systems.

Details of Scholarships

Scholarships are available to students with excellent academic qualification on a case by case basis. Some conditions such as work-study may be applied. Some scholarships provide stipends. For more information, visit http://www.ict.mahidol.ac.th

Additional information for applicants

As one of the first M.Sc. in Computer Science programs in Thailand, the program stresses on the rigorous teaching and research methods of classical computer science focusing in software development and programming and system analysis. Faculty members graduated from world-class universities and conduct high quality research. Our graduates work in top state and private organizations in the area of computing supporting the digital economy initiative of the country.

Application Process

Apply online at www.grad.mahidol.ac.th

Required Documents

Applicants must upload all documents via online admission system. All documents must be in PDF format (maximum size 2 MB). Photograph must be in JPEG format

- A recent and formal photograph (1x1 inch in size)
- A copy of an applicant's degree certificate or a letter of graduation certification
  (for an applicant with a degree completion)
- A letter certifying that an applicant is currently in the final year prior to graduation
  (for an applicant seeking for a degree while studying in an undergraduate program)
- A detailed transcript of a degree (for an applicant with a degree completion)
- An incomplete detailed transcript of a degree with course names and grades
  of the first to the current semester prior to graduation
  (for an applicant seeking for a degree while studying in an undergraduate program)
- For Thai applicants, a copy of Thai identification card with a signature on it.
- For Foreign applicants, a valid passport showing both your photo and the expiration date
- A copy of house registration certification for Thai applicants
- A copy of Certificate of English proficiency:
  IELTS / TOEFL INTERNET BASED / TOEFL ITP / MU GRAD TEST(Computer based)
- A copy of proof of payment for the application fee

Job option after graduation

1. Computer Science Researcher นักวิจัยด้านวิทยาการคอมพิวเตอร์
2. Computer Scientist นักวิชาการคอมพิวเตอร์
3. System Analyst and Designer นักวิเคราะห์และออกแบบระบบงาน
4. Software Designer and Developer/Programmer นักออกแบบและพัฒนาซอฟต์แวร์
5. Database Administrator นักบริหารฐานข้อมูล
6. Network and System Administrator นักบริหารระบบและเครือข่ายสื่อสาร
7. IT Project Manager ผู้จัดการโครงการด้านเทคโนโลยีสารสนเทศ

Further information about the programme and scholarship may be obtained from the Director of Graduate Studies, Computer Science :

1. Asst. Prof. Boonsit Yimwadsana   (E-mail : ictadmission@mahidol.ac.th, boonsit.yim@mahidol.ac.th)
2. Dr. Thitinan Tantidham   (E-mail : ictadmission@mahidol.ac.th, thitinan.tan@mahidol.ac.th)

Program Coordinator

1. Miss. Thunyathorn Suthijaroen   (E-mail : ictadmission@mahidol.ac.th, thunyathorn.sut@mahidol.ac.th)
2. Miss. Buntida Suvacharakulton   (E-mail : ictadmission@mahidol.ac.th, buntida.suv@mahidol.ac.th)

Phayathai Campus

Faculty of Information and Communication Technology, Computing Center Building, Mahidol University, Phayathai campus, Rama 6 Road, Rajathvi, Bangkok 10400
Tel. : 0 2354 4333   Fax: 0 2354 7333

Salaya Campus

Faculty of Information and Communication Technology, ICT Building, Mahidol University, 999 Phuttamonthon 4 road, Salaya, Phuttamonthon, Nakhon Pathom 73170
Tel. : 0 2441 0909   Fax: 0 2441 0808

For more information and update of our Master in Computer Science program, please visit the following web site: www.ict.mahidol.ac.th and www.grad.mahidol.ac.th (E-mail : gradthai@mahidol.ac.th)

Notes 1. The programme of Computer Science requires students   to study the prerequisite courses:

-ITCS 503	Design and Analysis of Algorithms	3 Credits
-ITCS 504	Computer Systems Organization and Architecture	3 Credits
-ITCS 507	Mathematical Foundations for Computer Science	3 Credits

2. For more education information : http://www.grad.mahidol.ac.th
                                                     :   www.ict.mahidol.ac.th